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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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FITCH EVEN TABIN AND FLANNERY 120 SOUTH LA SALLE STREET SUITE 1600 CHICAGO, IL 60603-3406			MACE, BRAD THOMAS	
			ART UNIT	PAPER NUMBER
			2663	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/629,408	Applicant(s) RATASUK ET AL.	
	Examiner Brad T. Mace	Art Unit 2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 16-26 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: On line 25 of pg. 4, it states "the mobile unit described above", however it was not clearly stated above that a mobile unit was being discussed. On line 9 of pg. 5 there is a "(" without a corresponding ")". On line 26 of pg. 5 there should be a space between "." and "If". On line 2 of pg. 6 a framer is discussed however this is not in the drawings. On line 9 of pg. 8 "41" should be "40". On line 15 of pg. 8, ":" should be ".". Appropriate correction is required.

Drawings

2. The drawings are objected to because it appears that reference 10 points to the same thing as reference 11. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to

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obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: reference 25 on line 2 of pg. 6 for Figure 2. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: reference 57 in Figure 5. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be

labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

5. Claims 10, 11, 16, 17, 18, 19 are objected to because of the following informalities: it is unclear in how many communication services is indicated by "some" on line 2 of claim 10 and on line 2 of claim 11 and on line 1 of claim 16 and on lines 2 and 4 of claim 17 and on line 1 of claim 18 and on line 1 of claim 19. "common code division multiplexing code" lacks antecedent basis on line 25 of claim 16. Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 2, 3, 4, 5, 6, 7, 10, 11, 16, 17, 18, 19, 20, 21, 22, 23, 25, and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Publication No.

2004/0082301 (Agin).

Regarding claims 1, 21:

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8. Agin discloses a method (and apparatus) comprising providing at least two communication services to be transmitted using at least one code division multiplexing code, wherein the at least two communication services comprise at least a first communication service to be transmitted pursuant to a first level of quality-of-service and a second communication service to be transmitted pursuant to a second level of quality-of-service (paragraph [0055], where paragraph [0035] states the use of CDMA and paragraph [0027] states that each service is associated with a quality of service), selecting a given one of the communication services and using that given one of the communication services and a level of quality-of-service that corresponds to the given one of the communication services to govern outer loop power control during transmission of the at least two communication services using the at least one code division multiplexing code (paragraph [0055], where paragraph [0006] further states that the selected service causes the outer power control loop to determine the target value (SIR, as indicated by paragraph [0005]) that will enable the quality of service, hence governing the outer power control loop, and where paragraph [0035] states the use of CDMA), and selecting rate matching parameters for each of the at least two communication services independently of transmission energy factors (paragraphs [0076], [0077], [0078], where the selected quality of service indicator (i.e. BER – bit error rate) is associated with the various services, yields selection of a service, at a given time, to reach the value of its target quality of service, BER (bit error rate) independent of transmission energy factors).

Regarding claim 2:

9. Agin discloses wherein providing at least two communication services includes providing a voice service and a data service (as indicated by a UMTS CDMA system in paragraph [0002]).

Regarding claims 3, 4:

10. Agin discloses wherein providing at least two communication services to be transmitted using at least one code division multiplexing code wherein the at least two communication services comprise at least a first communication service to be transmitted pursuant to a first level of quality-of-service (paragraph [0055], where paragraph [0035] states the use of CDMA and paragraph [0027] states that each service is associated with a quality of service) comprises using transmitted data error information to characterize the quality-of-service (paragraph [0044], where the quality of service can be characterized with the FER (frame error rate)).

Regarding claims 5, 6, 23:

11. Agin discloses wherein selecting a given one of the communication services comprises selecting a given one of the communications services that has a highest level of quality of service as compared to others of the at least two communications services (paragraph [0075], and since the calculation module dynamically, for a given link, at a given time, selects the type of service with the highest power, it must order the level of the quality of services so that the service with the highest power can be chosen).

Regarding claims 7, 10:

12. Agin discloses wherein selecting rate matching parameters for each of the at least two communication services independently of transmission energy factors

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comprises determining a rate matching parameter ratio (paragraph [0046], where each connection is to maintain a parameter of transmission quality such as signal-to-interference ratio (SIR), where signal-to-interference ratio is also a gain value, hence to achieve the desired transmission quality (to reach the target value), proportional processing gain takes place).

Regarding claim 11:

13. Agin discloses wherein determining a proportional processing gain for at least some of the communication services comprises determining a proportional processing gain for each of the communication services other than the given one of the communication services (paragraph [0048], where the target value SIR_c is selected as a function of the required of service and since there are multiple services the value is to adapt the transmission to the current service type, hence the proportional processing gain is determined for each service).

Regarding claims 16, 25:

14. Agin discloses modifying at least some of the rate matching parameters during transmission of the communication services using the common code division multiplexing code (paragraphs [0076], [0077], [0078], where the selected quality of service indicator (i.e. BER – bit error rate) is associated with the various services, yields selection of a service, at a given time, to reach the value of its target quality of service, where the BER (bit error rate) can be adjusted for a service, by adjusting the SIR_c (as indicated by paragraphs [0080], [0081]), and where paragraph [0035] states the use of CDMA).

Regarding claim 17:

15. Agin discloses receiving information regarding substantially current channel conditions and wherein modifying at least some of the rate matching parameters during transmission of the communication services comprises modifying at least some of the rate matching parameters during transmission of the communication services as a function, at least in part, of the current channel conditions (paragraphs [0076], [0077], where each service desires to achieve a target quality of service, where the quality of service directly pertains to the quality indicators (for example FER –frame error rate of the channel, as indicated by paragraph [0044], hence quality indicators are adjusted (by increasing or decreasing SIR_c), therefore are a function of the channel condition).

Regarding claims 18, 26:

16. Agin discloses wherein modifying at least some of the rate matching parameters includes modifying a rate matching parameter ratio (paragraphs [0076], [0077], where each service desires to achieve a target quality of service, where the quality of service directly pertains to the quality indicators (for example FER –frame error rate of the channel, as indicated by paragraph [0044], hence quality indicators are adjusted (by increasing or decreasing SIR_c), therefore the SIR_c ratio is modified).

Regarding claim 19:

17. Agin discloses storing at least some information that corresponds to modifications of the rate matching parameters and using the information to determine rate matching parameters to support a subsequent communication session (paragraph [0078], where the calculation module calculates for the services retained the difference

in their target and current quality service, in order to retain the service with the greatest difference that meets one of the specified conditions. When a quality indicator is modified, the service SIRc is modified, and in order to retain the service with the greatest difference that meets one of the specified conditions, the modified parameters are known (stored) to the calculation modules since the modified parameters are incorporated into the respective services).

Regarding claim 20:

18. Agin discloses wherein selecting rate matching parameters for each of the at least two communication services independently of transmission energy factors further comprises selecting rate matching parameters for each of the at least two communication services as a function, at least in part, of a condition of a channel (paragraphs [0076], [0077], where each service desires to achieve a target quality of service, where the quality of service directly pertains to the selection of quality indicators (for example FER –frame error rate of the channel, as indicated by paragraph [0044], where FER can be dependent upon noise for example, as known in the art, therefore is a function of channel condition)).

Regarding claim 22:

19. Agin discloses wherein the rate matching parameter selection means determines a rate matching parameter ratio substantially independent of transmission energy factors (paragraphs [0076], [0077], [0078], [0080], [0081], where the selected quality of service indicator (i.e. BER – bit error rate) is associated with the various services, yields selection of a service, at a given time, to reach the value of its target quality of service,

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where the SIRc based on quality indicators (BER (bit error rate)), hence independent of transmission energy factors).

Claim Rejections - 35 USC § 103

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

21. Claims 8, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Publication No. 2004/0082301 (Agin) in view of Sohn et al. titled "Performance Studies of Rate Matching for WCDMA Mobile Receiver", as submitted by applicant.

Regarding claims 8, 9:

22. Agin discloses substantially all the claimed invention as specified above, however does not disclose expressly wherein determining a rate matching parameter ratio includes using the rate matching parameter ratio to allocate transport channel sizes to be used to transmit the communication services and wherein allocating transport channel sizes comprises at least one of increasing a quantity of transmitted symbols as corresponds to at least one of the communication services and decreasing a quantity of transmitted symbols as corresponds to at least one of the communication services.

Sohn et al. discloses a rate matching algorithm that involves the amount of transport channel bits to be punctured or repeated (section 3, and 3.1 on pgs. 2662 and

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2663. Sohn et al. discloses that rate matching that incorporates optimizing the E_b/N_o balancing is to increase the number of symbols of the transport channel that requires the highest channel bit energy among different transport channel services and decrease the number of symbols in other transport channels (section 4 on pg. 2663).

A person of ordinary skill in the art to which the invention pertains would have been motivated to combine Sohn et al. with Agin in order to incorporate rate matching to obtain the transport channel size and as well to adjust the quantity of transmitted symbols in the transport channel. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Sohn et al. with Agin (collectively Agin-Sohn et al.) in order to obtain the invention as specified in claims 1, 7, 8, and 9. The suggestion/motivation to do so would have been to use rate matching to determine the optimal transport channel size as well as adjust the quantity of transmitted symbols in order to efficiently utilize resources in the transport channel.

23. Claims 12, 13, 14, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Publication No. 2004/0082301 (Agin) in view of Baey et al. titled "QoS Tuning and Resource Sharing for UMTS WCDMA Multiservice Mobile", as submitted by applicant.

Regarding claim 12:

24. Agin discloses substantially all the claimed invention as specified above, however does not disclose expressly wherein the selecting rate matching parameters for each of the at least two communication services comprises combining the

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proportional processing gain as determined for each of the communication services other than the given one of the communication services with a rate matching parameter for the given one of the communication services.

Baey et al. discloses QoS balancing is simultaneously obtained by unequal repetition or puncturing as a means to tune the required E_b/N_o (corresponding to energy level) of each TrCH (transport channel), minimizing the mobile transmission power requirement (paragraph 4 of section 2.2.1 on pg. 223, lines 8-14, since QoS balancing is simultaneously obtained, the proportional processing gain (E_b/N_o) of each of the communication services (corresponding to the transport channels) are used to balance (hence combining) to achieve a desired QoS).

A person of ordinary skill in the art to which the invention pertains would have been motivated to combine Baey et al. with Agin in order to combine the proportional processing gain (E_b/N_o) of each of the communication services (corresponding to the transport channels), to minimize the power level corresponding to the balancing of the quality of service. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Baey et al. with Agin (collectively Agin-Baey et al.) in order to obtain the invention as specified in claims 1, 7, 10, 11, and 12. The suggestion/motivation to do so would have been to fine balance the quality of service by using the proportional processing gain (E_b/N_o) of each of the communication services (corresponding to the transport channels) so that the minimal transmission power required can be achieved.

Regarding claims 13, 14, 24:

25. Agin discloses substantially all the claimed invention as specified above, however does not disclose expressly further comprising selecting a transmit energy level and wherein selecting a transmit energy level comprises determining power requirements to likely achieve each of the preferred levels of quality-of-service and determining the transmit energy level as a function of the power requirements.

Baey et al. discloses QoS balancing is simultaneously obtained by unequal repetition or puncturing as a means to tune the required E_b/N_o (corresponding to energy level) of each TrCH (transport channel), minimizing the mobile transmission power requirement (paragraph 4 of section 2.2.1 on pg. 223, lines 8-14, hence selecting a transmit energy level where it corresponds to the minimal power requirement (able to achieve desired QoS))).

A person of ordinary skill in the art to which the invention pertains would have been motivated to combine Baey et al. with Agin in order to minimize the power level corresponding to the quality of service by adjusting the transmit energy level. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Baey et al. with Agin (collectively Agin-Baey et al.) in order to obtain the invention as specified in claims 1, 13, and 14. The suggestion/motivation to do so would have been to fine balance the quality of service (minimizing the transmission power level) by using the transmit energy level since it is associated with the power level.

Conclusion

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

*Zhang et al. discloses a channel and quality of service adaptation for multimedia over wireless networks.

*Furuskar et al. discloses a method and apparatus for controlling quality of service for multiple services through power setting.

*Lozano discloses a method and apparatus for communicating heterogeneous data traffic.

*Ayyagari et al. discloses capacity enhancement for multicode CDMA with integrated services through quality of services and admission control

*Lohtia et al. discloses dynamic QoS for integrated voice and data CDMA/1XRTT networks.

*Tong et al. discloses rate matching and channel interleaving for a communications system.

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brad T. Mace whose telephone number is (571) 272-3128. The examiner can normally be reached on Monday -Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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btm

Brad T. Mace
Examiner
Art Unit 2663

btm

September 16, 2004


RICKY NGO
PRIMARY EXAMINER
01/17/04